

Exhibit A
US Patent Application No. 09/995,529
Attorney Docket No. 30797-711.201
HUIV26 CDR SUBSTITUTIONS DISCLOSED IN SPECIFICATION

VH CDR1	1	2	3	4	5	6	7	8	9	10 ⁽³⁵⁾
SEQ ID NO: 26 WT, 2D4	G	F	D	F	S	R	Y	W	M	S
SEQ ID NO: 43	G	F	D	F	S	<u>H</u>	Y	W	M	S
SEQ ID NO: 44	G	F	D	F	S	R	Y	W	<u>I</u>	S
SEQ ID NO: 45 DcomD7, DhuG5, DhuH8	G	F	D	F	S	R	Y	W	M	<u>T</u>
SEQ ID NO: 46 2D4H1-C3	G	F	D	F	S	R	Y	W	M	<u>A</u>
SEQ ID NO: 47	G	F	D	F	S	R	Y	W	M	<u>G</u>

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VH CDR1

26: Gly Phe Asp Phe Ser Arg Tyr Trp Met Ser
43: Gly Phe Asp Phe Ser His Tyr Trp Met Ser
44: Gly Phe Asp Phe Ser Arg Tyr Trp Ile Ser
45: Gly Phe Asp Phe Ser Arg Tyr Trp Met Thr
46: Gly Phe Asp Phe Ser Arg Tyr Trp Met Ala
47: Gly Phe Asp Phe Ser Arg Tyr Trp Met Gly

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VH CDR2	1	2	3	4	5	6	7	8	9 ⁽⁵⁷⁾	10	11	12	13	14 ⁽⁶²⁾	15	16	17
SEQ ID NO: 28 WT, 2D4, 2D4H1- C3	E	I	N	P	D	S	S	T	I	N	Y	T	P	S	L	K	D
SEQ ID NO: 48	E	I	N	P	D	S	S	T	<u>A</u>	N	Y	T	P	S	L	K	D
SEQ ID NO: 49	E	I	N	P	D	S	S	T	<u>S</u>	N	Y	T	P	S	L	<u>D</u>	<u>K</u>
SEQ ID NO: 50	E	I	N	P	D	S	S	T	I	N	Y	T	P	<u>Y</u>	L	K	D
SEQ ID NO: 51	E	I	N	P	D	S	S	T	I	N	Y	T	P	<u>A</u>	L	K	D
SEQ ID NO: 52	E	I	N	P	D	S	S	T	I	N	Y	T	P	<u>H</u>	L	K	D
SEQ ID NO: 53	E	I	N	P	D	S	S	T	I	N	Y	T	P	<u>G</u>	L	K	D
SEQ ID NO: 54	E	I	N	P	D	S	S	T	I	N	Y	T	P	S	L	<u>Q</u>	D
SEQ ID NO: 55	E	I	N	P	D	S	S	T	I	N	Y	T	P	S	L	K	<u>S</u>
SEQ ID NO: 154	E	I	N	P	D	S	S	T	<u>A</u>	N	Y	T	P	<u>A</u>	L	K	D

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VH CDR2	1	2	3	4	5	6	7	8	9 ⁽⁵⁷⁾	10	11	12	13	14 ⁽⁶²⁾	15	16	17
SEQ ID NO: 155 DcomD7, DhuG5, DhuH8	E	I	N	P	D	S	S	T	<u>A</u>	N	Y	T	P	<u>Y</u>	L	K	D
SEQ ID NO: 156	E	I	N	P	D	S	S	T	<u>A</u>	N	Y	T	P	<u>H</u>	L	K	D
SEQ ID NO: 162	E	I	N	P	D	S	S	T	<u>V</u>	N	Y	T	P	S	L	K	D

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VH CDR2

28: Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu Lys Asp
48: Glu Ile Asn Pro Asp Ser Ser Thr Ala Asn Tyr Thr Pro Ser Leu Lys Asp
49: Glu Ile Asn Pro Asp Ser Ser Thr Ser Asn Tyr Thr Pro Ser Leu Asp Lys
50: Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Tyr Leu Lys Asp
51: Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Ala Leu Lys Asp
52: Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro His Leu Lys Asp
53: Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Gly Leu Lys Asp
54: Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu Gln Asp
55: Glu Ile Asn Pro Asp Ser Ser Thr Ile Asn Tyr Thr Pro Ser Leu Lys Ser
154: Glu Ile Asn Pro Asp Ser Ser Thr Ala Asn Tyr Thr Pro Ala Leu Lys Asp
155: Glu Ile Asn Pro Asp Ser Ser Thr Ala Asn Tyr Thr Pro Tyr Leu Lys Asp
156: Glu Ile Asn Pro Asp Ser Ser Thr Ala Asn Tyr Thr Pro His Leu Lys Asp
162: Glu Ile Asn Pro Asp Ser Ser Thr Val Asn Tyr Thr Pro Ser Leu Lys Asp

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VH CDR3	1	2	3	4	5	6	7	8	9	10	11 (102)
SEQ ID NO: 30 WT	P	V	D	G	Y	Y	D	A	M	D	Y
SEQ ID NO: 56	P	V	<u>P</u>	G	Y	Y	D	A	M	D	Y
SEQ ID NO: 57	P	V	<u>G</u>	G	Y	Y	D	A	M	D	Y
SEQ ID NO: 58	P	V	<u>T</u>	G	Y	Y	D	A	M	D	Y
SEQ ID NO: 59	P	V	<u>A</u>	G	Y	Y	D	A	M	D	Y
SEQ ID NO: 60	P	V	D	<u>P</u>	Y	Y	D	A	M	D	Y
SEQ ID NO: 61	P	V	D	<u>A</u>	Y	Y	D	A	M	D	Y
SEQ ID NO: 62	P	V	D	<u>H</u>	Y	Y	D	A	M	D	Y
SEQ ID NO: 63 2D4, 2D4H1-C3, DcomD7, DhuG5, DhuH8	P	V	D	G	Y	Y	D	A	M	D	<u>P</u>

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VH CDR3	1	2	3	4	5	6	7	8	9	10	11 (102)
SEQ ID NO: 64	P	V	D	G	Y	Y	D	A	M	D	<u>N</u>

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VH CDR3

30: Pro Val Asp Gly Tyr Tyr Asp Ala Met Asp Tyr

56: Pro Val Pro Gly Tyr Tyr Asp Ala Met Asp Tyr

57: Pro Val Gly Gly Tyr Tyr Asp Ala Met Asp Tyr

58: Pro Val Thr Gly Tyr Tyr Asp Ala Met Asp Tyr

59: Pro Val Ala Gly Tyr Tyr Asp Ala Met Asp Tyr

60: Pro Val Asp Pro Tyr Tyr Asp Ala Met Asp Tyr

61: Pro Val Asp Ala Tyr Tyr Asp Ala Met Asp Tyr

62: Pro Val Asp His Tyr Tyr Asp Ala Met Asp Tyr

63: Pro Val Asp Gly Tyr Tyr Asp Ala Met Asp Pro

64: Pro Val Asp Gly Tyr Tyr Asp Ala Met Asp Asn

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VL CDR1	1	2	3	4	5	6	7	8 ^(27d)	9 ^(27e)	10 ^(27f)	11	12	13	14	15	16	17
SEQ ID NO: 20 WT, 2D4, 2D4H1- C3	K	S	S	Q	S	L	L	N	S	G	N	Q	K	N	Y	L	A
SEQ ID NO: 65	K	S	S	<u>R</u>	S	L	L	N	S	G	N	Q	K	N	Y	L	A
SEQ ID NO: 66	K	S	S	<u>S</u>	S	L	L	N	S	G	N	Q	K	N	Y	L	A
SEQ ID NO: 67	K	S	S	Q	S	L	L	<u>S</u>	S	G	N	Q	K	N	Y	L	A
SEQ ID NO: 68	K	S	S	Q	S	L	L	N	<u>Y</u>	G	N	Q	K	N	Y	L	A
SEQ ID NO: 69	K	S	S	Q	S	L	L	N	<u>W</u>	G	N	Q	K	N	Y	L	A
SEQ ID NO: 70	K	S	S	Q	S	L	L	N	<u>H</u>	G	N	Q	K	N	Y	L	A
SEQ ID NO: 71	K	S	S	Q	S	L	L	N	<u>R</u>	G	N	Q	K	N	Y	L	A
SEQ ID NO: 72	K	S	S	Q	S	L	L	N	S	<u>Y</u>	N	Q	K	N	Y	L	A
SEQ ID NO: 73	K	S	S	Q	S	L	L	N	S	<u>R</u>	N	Q	K	N	Y	L	A

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VL CDR1	1	2	3	4	5	6	7	8 ^(27d)	9 ^(27e)	10 ^(27f)	11	12	13	14	15	16	17
SEQ ID NO: 74	K	S	S	Q	S	L	L	N	S	<u>H</u>	N	Q	K	N	Y	L	A
SEQ ID NO: 75	K	S	S	Q	S	L	L	N	S	<u>I</u>	N	Q	K	N	Y	L	A
SEQ ID NO: 76	K	S	S	Q	S	L	L	N	S	G	N	<u>K</u>	K	N	Y	L	A
SEQ ID NO: 157 DcomD7, DhuG5, DhuH8	K	S	S	Q	S	L	L	N	<u>W</u>	<u>Y</u>	N	Q	K	N	Y	L	A
SEQ ID NO: 158	K	S	S	Q	S	L	L	N	<u>Y</u>	<u>Y</u>	N	Q	K	N	Y	L	A
SEQ ID NO: 159	K	S	S	Q	S	L	L	N	<u>Y</u>	<u>H</u>	N	Q	K	N	Y	L	A
SEQ ID NO: 160	K	S	S	Q	S	L	L	N	<u>R</u>	<u>Y</u>	N	Q	K	N	Y	L	A
SEQ ID NO: 161	K	S	S	Q	S	L	L	N	<u>W</u>	<u>H</u>	N	Q	K	N	Y	L	A

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VL CDR1 20: Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu Ala
65: Lys Ser Ser Arg Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu Ala
66: Lys Ser Ser Ser Leu Leu Asn Ser Gly Asn Gln Lys Asn Tyr Leu Ala
67: Lys Ser Ser Gln Ser Leu Leu Ser Ser Gly Asn Gln Lys Asn Tyr Leu Ala
68: Lys Ser Ser Gln Ser Leu Leu Asn Tyr Gly Asn Gln Lys Asn Tyr Leu Ala
69: Lys Ser Ser Gln Ser Leu Leu Asn Trp Gly Asn Gln Lys Asn Tyr Leu Ala
70: Lys Ser Ser Gln Ser Leu Leu Asn His Gly Asn Gln Lys Asn Tyr Leu Ala
71: Lys Ser Ser Gln Ser Leu Leu Asn Arg Gly Asn Gln Lys Asn Tyr Leu Ala
72: Lys Ser Ser Gln Ser Leu Leu Asn Ser Tyr Asn Gln Lys Asn Tyr Leu Ala
73: Lys Ser Ser Gln Ser Leu Leu Asn Ser Arg Asn Gln Lys Asn Tyr Leu Ala
74: Lys Ser Ser Gln Ser Leu Leu Asn Ser His Asn Gln Lys Asn Tyr Leu Ala
75: Lys Ser Ser Gln Ser Leu Leu Asn Ser Ile Asn Gln Lys Asn Tyr Leu Ala
76: Lys Ser Ser Gln Ser Leu Leu Asn Ser Gly Asn Lys Lys Asn Tyr Leu Ala
157: Lys Ser Ser Gln Ser Leu Leu Asn Trp Tyr Asn Gln Lys Asn Tyr Leu Ala
158: Lys Ser Ser Gln Ser Leu Leu Asn Tyr Tyr Asn Gln Lys Asn Tyr Leu Ala
159: Lys Ser Ser Gln Ser Leu Leu Asn Tyr His Asn Gln Lys Asn Tyr Leu Ala
160: Lys Ser Ser Gln Ser Leu Leu Asn Arg Tyr Asn Gln Lys Asn Tyr Leu Ala
161: Lys Ser Ser Gln Ser Leu Leu Asn Trp His Asn Gln Lys Asn Tyr Leu Ala

VL CDR2	1	2	3	4	5	6	7
SEQ ID NO: 22 WT, 2D4, 2D4H1- C3, DcomD7, DhuG5, DhuH8	G	A	S	T	R	E	S

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VL CDR2

22: Gly Ala Ser Thr Arg Glu Ser

VL CDR3	1	2	3	4	5 ⁽⁹³⁾	6	7	8	9
SEQ ID NO: 24 WT	Q	N	D	H	S	Y	P	Y	T
SEQ ID NO: 77 2D4, 2D4H1-C3, DcomD7, DhuG5, DhuH8	Q	N	D	H	<u>Q</u>	Y	P	Y	T
SEQ ID NO: 78	Q	N	D	H	<u>G</u>	Y	P	Y	T
SEQ ID NO: 79	Q	N	D	H	<u>L</u>	Y	P	Y	T
SEQ ID NO: 80	Q	N	D	H	<u>A</u>	Y	P	Y	T
SEQ ID NO: 81	Q	N	D	H	<u>T</u>	Y	P	Y	T
SEQ ID NO: 82	Q	N	D	H	<u>V</u>	Y	P	Y	T
SEQ ID NO: 83	Q	N	D	H	S	<u>N</u>	P	Y	T
SEQ ID NO: 84	Q	N	D	H	S	<u>S</u>	P	Y	T
SEQ ID NO: 85	Q	N	D	H	S	<u>P</u>	P	Y	T
SEQ ID NO: 86	Q	N	D	H	S	<u>M</u>	P	Y	T

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VL CDR3

24: Gln Asn Asp His Ser Tyr Pro Tyr Thr
77: Gln Asn Asp His Gln Tyr Pro Tyr Thr
78: Gln Asn Asp His Gly Tyr Pro Tyr Thr
79: Gln Asn Asp His Leu Tyr Pro Tyr Thr
80: Gln Asn Asp His Ala Tyr Pro Tyr Thr
81: Gln Asn Asp His Thr Tyr Pro Tyr Thr
82: Gln Asn Asp His Val Tyr Pro Tyr Thr
83: Gln Asn Asp His Ser Asn Pro Tyr Thr
84: Gln Asn Asp His Ser Ser Pro Tyr Thr
85: Gln Asn Asp His Ser Pro Pro Tyr Thr
86: Gln Asn Asp His Ser Met Pro Tyr Thr